



Real world solutions to problems of national importance

Welcome to the cross-disciplinary Air Transportation Center of Excellence (CoE) for Airliner Cabin Environment Research (ACER), which focuses on both **health** and **security** issues. ACER is sponsored by the FAA Office of Aerospace Medicine (AAM), with 1:1 non-Federal matching funds.

ACER has expanded into **other modes of transportation** and in August 2007 will become the Air Transportation National Center of Excellence for Research in the Intermodal Transport Environment (RITE).

Auburn University serves as the administrative lead for the ACER CoE. Purdue and Harvard Universities are technical co-leads, with Boise State University, Kansas State University, University of California Berkeley and the University of Medicine & Dentistry of New Jersey as center core members. Oklahoma State and Saint Louis Universities are ACER affiliates.

Expertise: The ACER team provides the FAA/industrial partners with expertise in practical solutions for the aviation industry, especially:

- ★ the healthfulness of the cabin environment;
- ★ enhancement of aircraft environmental control systems;
- ★ detection and mitigation of both deliberate and unintentional chemical and biological threats.

Vision & Mission: ACER's vision is to enable a safe, healthy, comfortable and secure cabin environment. ACER's mission is to:

- ★ respond to the nation's needs for scientifically valid cabin environment research;

- ★ develop and evaluate advanced technologies for:
 - ★ enhancing the cabin environment;
 - ★ mitigating potential threats;
- ★ conduct R & D relevant to the FAA's mission and which is responsive to the key constituencies served by/serving the airline industry.

ACER is focused on high quality, cost-effective real-world



Point of contact
William F. Gale, Ph.D., ACER Executive Director
275 Wilmore Laboratories
Auburn University, AL 36849
(334) 844-3406, galewil@auburn.edu

solutions to key problems of national importance.

Research Program: The ACER CoE was awarded by the FAA in September, 2004. ACER's research funding started in spring 2005. ACER has received \$ ~ 14 M in FAA funding.

ACER's research currently focuses on:

- ★ Ozone in passenger cabins.
- ★ Exposure & risks of pesticides on-board aircraft.
- ★ Cabin pressure effects on passengers and crew.
- ★ Air quality incidents.
- ★ In-flight measurements.
- ★ Contaminant transport in the airliner cabin.
- ★ Chemical-biological and air quality sensors for both routine and research use.
- ★ Decontamination of the cabin after incidents.
- ★ Disease transmission and the role of the airliner cabin.

ACER's research emphasizes applied, practical topics with near-term impact.



Industrial Partnerships:

ACER has a strong team of nearly 40 industrial partners. This provides invaluable real



world expertise and testbeds for our technologies. Cash and/or in-kind support from many of our partners helps ACER meet the 1:1 non-Federal matching specified in the CoE enabling legislation. ACER is always interested in establishing new partnerships, with the aviation industry in the broadest sense, government and academia. Those partners that have contributed to the financial viability of ACER include:

- ★ AeroClave LLC
- ★ Airline Pilots Association
- ★ Aldec
- ★ Altera Inc.
- ★ The Boeing Company
- ★ COPE International-USA
- ★ Delta Air Lines
- ★ Donaldson Company Inc.
- ★ Fluent Inc.
- ★ GE Aviation
- ★ Goodrich Sensor Systems
- ★ Hamilton Sundst./UTRC
- ★ Honeywell
- ★ Int. Cent. Indoor Environ.
- ★ JYM RSA, Inc.
- ★ Keddeg Company
- ★ LG Electronics
- ★ Microchip Technology Inc.
- ★ MITRE Corporation
- ★ Pall Aeropower Corp.
- ★ nzymSys Inc.
- ★ Spitfire Aviation Partners
- ★ Strategix LLC
- ★ STERIS Corporation
- ★ TSI Inc.
- ★ Xilinx Inc.

Added Value: ACER's research is heavily cross-linked and places a major emphasis on added value over stand-alone activities. For example:

- ★ Every ACER project involves multiple institutions and all team members take part in multiple projects.
- ★ There is extensive knowledge transfer and synergy between the projects.
- ★ Industry is closely involved in all of ACER's research.
- ★ ACER reaches out to DoD, DHS, EPA, CDC and other Federal agencies for coordination and avoiding duplication of effort.
- ★ ACER has a wide range of national and international collaborations.

Intermodal Applications:

ACER's primary focus has thus far been on civil aviation. However, the center has diversified into other modes of transportation, such as rail, buses, ambulances etc. ACER's interest in multimodal transportation is reflected in a planned name change to the *Air Transportation National Center of Excellence for Research in the Intermodal Transport Environment (RITE)*.

Already (June, 07) a Success:

Although ACER is the youngest of the FAA's CoEs, it has already been extremely successful. Please see the individual project sheets for more information on ACER's many success stories.



Point of contact

William F. Gale, Ph.D., ACER Executive Director
275 Wilmore Laboratories
Auburn University, AL 36849
(334) 844-3406, galewil@auburn.edu